

In the Claims:

1-21.(Canceled)

22. (Currently Amended) A method for the production of soluble ~~HLA~~ ~~molecules~~ MHC complexes in a cell pharm having an appropriate growth media therein, comprising the steps of:

- obtaining gDNA from a ~~source~~ sample wherein a portion of the gDNA encodes a desired ~~HLA-allele~~ individual MHC heavy chain molecule;
- creating a PCR product encoding a soluble form of the desired ~~HLA~~ MHC heavy chain molecule by PCR amplification of the gDNA ~~encoding the desired HLA-allele~~, wherein the amplification utilizes at least one locus-specific primer having a stop codon incorporated into a 3' primer thereby resulting in a PCR product that does not encode the cytoplasmic and transmembrane domains of the desired ~~HLA~~ MHC heavy chain molecule, thereby producing a PCR product that encodes a soluble ~~HLA-molecule~~ MHC heavy chain molecule;
- inserting the PCR product into a mammalian expression vector to form a plasmid containing the PCR product encoding the soluble ~~HLA~~ MHC heavy chain molecule;
- electroporating the plasmid containing the PCR product into at least

one suitable host cell; and

- inoculating the cell pharm with the at least one suitable host cell containing the plasmid such that the cell pharm produces soluble ~~HLA molecules~~ MHC complexes having the desired MHC heavy chain molecule associated with native beta-2-microglobulin and loaded with endogenously produced peptides.

23. (Currently Amended) The method according to claim 22, further comprising the step of harvesting the soluble ~~HLA molecules~~ MHC complexes from the cell pharm.

24. (Currently Amended) The method according to claim 22, wherein the soluble ~~HLA molecules~~ MHC complexes are Class I HLA molecules or Class II HLA molecules.

25. (Currently Amended) The method according to claim 22, wherein, ~~in the step of obtaining gDNA from a source,~~ the gDNA is obtained from blood, saliva, hair, semen, or sweat.

26. (Currently Amended) The method according to claim 22, wherein, ~~in the step of inserting the PCR product into a mammalian expression vector,~~ the

mammalian expression vector contains a promoter that facilitates increased expression of the PCR product.

27. (Currently Amended) The method according to claim 22, wherein, ~~in the step of electroporating the plasmid containing the PCR product into at least one suitable host cell,~~ the suitable host cell lacks expression of ~~Class I HLA~~ MHC molecules.

28. (Currently Amended) A method for the production of soluble HLA ~~molecules~~ MHC complexes in a cell pharm having an appropriate growth media therein, comprising the steps of:

- obtaining gDNA from a ~~source~~ sample wherein a portion of the gDNA encodes a desired HLA individual MHC heavy chain molecule ~~allele~~;
- isolating mRNA from ~~the~~ gDNA and reverse transcribing the mRNA to obtain cDNA, wherein the ~~mRNA~~ cDNA contains ~~mRNA~~ cDNA encoding the desired HLA MHC heavy chain molecule ~~allele~~ and ~~thus the cDNA contain cDNA encoding the desired HLA allele~~;
- creating a PCR product encoding a soluble form of the desired MHC heavy chain molecule ~~HLA allele~~ by PCR amplification of the cDNA encoding the desired ~~HLA allele~~ MHC heavy chain molecule,

wherein the amplification utilizes at least one locus-specific primer and results in a PCR product that does not encode the cytoplasmic and transmembrane domains of the desired ~~HLA molecule~~ MHC heavy chain molecule, thereby producing a PCR product that encodes a soluble ~~HLA molecule~~ MHC heavy chain molecule;

- inserting the PCR product into a mammalian expression vector to form a plasmid containing the PCR product ~~encoding a soluble HLA molecule~~;
- electroporating the plasmid containing the PCR product into at least one suitable host cell; and
- inoculating the cell pharm with the at least one suitable host cell containing the plasmid such that the cell pharm produces soluble ~~HLA molecules~~ MHC complexes having the desired MHC heavy chain molecule associated with native beta-2-microglobulin and loaded with endogenously produced peptides.

29. (Currently Amended) The method according to claim 28, further comprising the step of harvesting the soluble MHC complexes ~~HLA molecules~~ from the cell pharm.

30. (Currently Amended) The method according to claim 28, wherein the

soluble ~~HLA molecules~~ MHC complexes are Class I HLA molecules or Class II HLA molecules.

31. (Currently Amended) The method according to claim 28, wherein ~~in the step of obtaining gDNA from a source,~~ the gDNA is obtained from blood, saliva, hair, semen, or sweat.

32. (Currently Amended) The method according to claim 28, wherein, ~~in the step of creating a PCR product,~~ the locus-specific primer includes a sequence encoding a tail such that the soluble ~~HLA~~ MHC heavy chain molecule encoded by the PCR product contains a tail attached thereto that facilitates in purification of the soluble ~~HLA molecules~~ MHC complexes produced therefrom.

33. (Currently Amended) The method according to claim 28, wherein ~~in the step of inserting the PCR product into a mammalian expression vector,~~ the mammalian expression vector contains a promoter that facilitates increased expression of the PCR product.

34. (Currently Amended) The method according to claim 28, wherein ~~in the step of electroporating the plasmid containing the PCR product into at least one suitable host cell,~~ the suitable host cell lacks expression of ~~Class I HLA~~ MHC

molecules.

35. (Currently Amended) A method for the production of soluble MHC complexes ~~HLA molecules~~ in a cell pharm having an appropriate growth media therein, comprising the steps of:

- obtaining gDNA from a ~~source~~ sample, wherein a portion of the gDNA encodes a ~~HLA~~ desired individual MHC heavy chain molecule allele;
- isolating mRNA from the gDNA and reverse transcribing the mRNA to obtain cDNA, wherein the mRNA contains mRNA for the desired ~~HLA~~ MHC heavy chain allele and thus the cDNA contains cDNA encoding for the a desired ~~HLA~~ MHC heavy chain molecule allele;
- creating a PCR product encoding a soluble form of the desired ~~HLA~~ MHC heavy molecule allele by PCR amplification of the cDNA encoding the desired ~~HLA~~ MHC heavy chain molecule allele, wherein the amplification utilizes at least one locus-specific primer and results in a PCR product that does not encode the cytoplasmic and transmembrane domains of the desired ~~HLA~~ MHC heavy chain molecule, thereby producing a PCR product that encodes a the soluble ~~HLA~~ MHC heavy chain molecule;

- inserting the PCR product into a mammalian expression vector to form a plasmid containing the PCR product encoding a the soluble HLA MHC heavy chain molecule;
- electroporating the plasmid containing the PCR product into at least one suitable host cell; and
- inoculating the cell pharm with the at least one suitable host cell containing the plasmid such that the cell pharm produces soluble ~~HLA molecules~~, MHC complexes having the desired MHC heavy chain molecule associated with native beta-2-microglobulin and loaded with endogenously produced peptides, wherein the soluble ~~HLA molecules~~ MHC complexes are folded naturally and are trafficked through the host cell in such a way that they are identical in functional properties to an ~~HLA molecule~~ MHC complex expressed from the ~~HLA MHC heavy chain~~ allele mRNA and thereby bind peptide ligands in an identical manner as full-length, cell-surface-expressed ~~HLA molecules~~ MHC complexes.

36. (Currently Amended) The method according to claim 35, further comprising the step of harvesting the soluble ~~HLA molecules~~ MHC complexes from the cell pharm.

37. (Currently Amended) The method according to claim 35, wherein the soluble ~~HLA molecules~~ MHC complexes are Class I HLA molecules or Class II HLA molecules.

38. (Currently Amended) The method according to claim 35, wherein ~~in the step of obtaining gDNA from a source,~~ the gDNA is obtained from blood, saliva, hair, semen, or sweat.

39. (Currently Amended) The method according to claim 35, wherein ~~in the step of creating a PCR product,~~ the at least one locus-specific primer is a 3' primer having a stop codon incorporated therein.

40. (Currently Amended) The method according to claim 35 wherein, ~~in the step of creating a PCR product,~~ the locus-specific primer includes a sequence encoding a tail such that the soluble ~~HLA~~ MHC heavy chain molecule encoded by the PCR product contains a tail attached thereto that facilitates in purification of the soluble ~~HLA molecules~~ MHC complexes produced therefrom.

41. (Currently Amended) The method according to claim 35 wherein, ~~in the step of inserting the PCR product into a mammalian expression vector,~~ the mammalian expression vector contains a promoter that facilitates increased



expression of the PCR product.

42. (Currently Amended) The method according to claim 35 wherein, ~~in the step of electroporating the plasmid containing the PCR product into at least one suitable host cell,~~ the suitable host cell lacks expression of ~~Class I HLA~~ molecules MHC complexes.